

Sample Paper – 2011
Class – XII
Subject – Computer Science

Sub : Computer Sc.
Class : 12

Time : 3 hrs.
M. Marks : 70

General Instructions :

1. *Programming language is C++.*
2. *All the questions are compulsory.*

1. a) What is the difference between call by value and call by reference in a user defined function in C++ ?

Give an example. (2)

b) Name the **header file**, included in the following program : (2)

```
void main( )
{
    clrscr( ) ;
    cout<<setw(7)<<4444 ;
    cout<<strncpy(a,b) ;
    exit(0);
    getch( ) ;
}
```

c) Give the output of the following program : (3)

```
# include<iostream.h>
int calc( int u )
{
    if( u % 2 == 0 )
        return u + 10 ;
    else
        return u * 2 ;
}
Void pattern( char m , int b = 2 )
{
    For( int cnt = 0 ; cnt <b ; cnt ++ )
        Cout<<calc(cnt) << m ;
    Cout<<endl ;
}
Void main( )
{
    Pattern( ' * ' ) ;
    Pattern( '# ' , 4 ) ;
    Pattern( '@ ' , 3 ) ;
}
```

d) Find the output of the following program : (3)

```
# include< iostream.h>
struct point
{
    int x , y ;
};
Void show( point p )
{
```

```

        cout<< p. x << ' : ' << p.y << endl ;
    }
    Void main( )
    {
        Point u = { 20, 10 }, v , w ;
        V = 1;
        v.x + = 20 ;
        w = v ;
        u.y + = 10 ;
        u.x + = 5 ;
        w.x - = 5 ;
        show( u ) ;
        show( v ) ;
        show( w ) ;
    }

```

e) Rewrite the following program after removing the syntactical errors(if any) , underline each correction : (2)

```

#include(<iostream.h>)
void main( )
{
    int X[ ] = { 60, 50, 30, 40 },y ; count =4 ;
    cin>> y;
    for( l = count - l ; l >=0 ; l - -)
    Switch( l )
    {
        Case 0 :
        Case 2 : cout<<y * x[1]<endl ; break ;
        Case 1 :
        Case 3 : cout>> y + x[i];
    }
}

```

f) Write a C++ function SUMFUN() having two parameters X (of type double) and n (of type integer) with a result type as double to find the sum of the series given below : (4)

$$X + \frac{X^2}{3!} + \frac{X^3}{5!} + \dots + \frac{X^N}{(2N-1)!}$$

2. a) What do you understand by Constructor Overloading ? Give suitable example of the same . (2)

b) Define a class **Serial in C++ with the following specifications :** (4)

private members of class **Serial**

- serialcode integer
- title 20 characters
- duration float
- noofepisodes integer

public members of class **Serial**

- A constructor function to initialize duration as 30 and noofepisodes as 10.
- Newserial() function to accept values for serialcode and title.

- Otherentries() function to assign the values of duration and noofepisodes with the help of corresponding values passed as parameters to this function .
- Dispdata() function to display all the data members on the screen.

d) Answer the questions (i) to (iv) based on the following code :

(4)

```
class university
{
    Int noc ;
    Protected :
        Char unname[25] ;
    Public :
        University( ) ;
        Char state[25] ;
        Void enterdata( ) ;
        Void displaydata( ) ;
};
Class college : public university
{
    Int nod ;
    Char cname[25];
    Protected :
        Void affiliation( ) ;
    Public :
        College( );
        Void enroll( int , int );
    Void show( ) ;
};
Class department : public college
{ Char dname[25] ;
  Int nof ;
  Public :
      Department( ) ;
      Void display( ) ;
      Void input( ) ;
};
```

- i) Which class's constructor will be called first at the time of declaration of an object of class department ?
- ii) How many bytes does an object belonging to class department require ?
- iii) Name the member function(s), which are accessed from the object(s) of class department .
- iv) Name the data member(s), which are accessible from the object(s) of class college.

(# 3 / 6)

3.a) Write a function in C++, which accepts an integer array and its size as parameters and rearranges array in reverse. Example : if an array of eight elements initially contains the elements as : (4)

4, 2, 5, 1, 6, 7, 8, 12,

Then the function should rearrange the array as :

2, 4, 1, 5, 7, 6, 12, 8

b) An array $V[15][13]$ is stored in the memory with each element requiring 8 bytes of storage. If the address of V is 5300, find out memory locations $V[8][12]$ and $V[12][12]$, if the array is stored along the row. (3)

c) Write a function in C++ to delete an element into a dynamically allocated Queue where each node contains a name (of type string) as data. (3)

d) Write the user defined function in C ++ to display those elements of a two dimensional array $M[5][5]$ which are divisible by 10. Assume the content of the array is already present and the function prototype is as follows : (3)

```
void display arr19( int M[5][5] )
```

e) Evaluate the following postfix notation of expression (Show status of stack after execution of each operation) : (2)

120 , 45 , 20 , + , 25 , 15 , - , + , *

4. a) Write a user defined function in c++ to count and display the number of vowels present in a text file "STAR.TXT". (2)

b) Assuming the class **JOKE** given below, write functions in C++ to perform following : (4)

i) Write the objects of JOKE to a binary file.

ii) Read the objects of JOKE from binary file and display them on screen.

Class JOKE

```
{
    int jokeid ;
    char type[5];
    char jokedesc[255];
public :
    void newjokeentry( )
    { cin>>jokeid ; gets(type) ; gets(jokedesc) ; }
    void showjoke( )
    { cout<<jokeid<<" : " << type << endl ;
      cout << jokedesc << endl ;
    }
};
```

5. a) Differentiate between DDL and DML statements ? (2)

b) Write SQL commands for the statements (i) to (v) and give outputs for SQL queries (vi) to (vii) : on the basis of the table FURNITURE and ARRIVALS (6)

TABLE : FURNITURE

NO	ITEMNAME	TYPE	DATEOF STOCK	PRICE	DISCOUNT
1	White lotus	Double Bed	23/02/02	30000	25
2	Pink feather	Baby cot	20/01/02	7000	20
3	Dolphin	Baby cot	19/02/02	9500	20
4	Decent	Office table	01/01/02	25000	30
5	Comfort Zone	Double Bed	12/01/02	25000	25
6	Donald	Baby cot	24/02/02	6500	15
7	Royal Finish	Office table	20/02/02	18000	30
8	Royal tiger	Sofa	22/02/02	31000	30
9	Econo sitting	Sofa	13/12/01	9500	25
10	Eating Paradise	Dining Table	19/02/02	11500	25

TABLE : ARRIVALS

No	ITENMNAME	TYPE	DATEOFSTOCK	PRCE	DISCOUNT
11	Wood Comfort	Double Bed	23/03/03	25000	25
12	Old Fox	Sofa	20/02/03	17000	20
13	Micky	Baby cot	21/02/03	7500	15

- i) To show all information about the baby cots from furniture table.
- ii) To list the itemname which are priced at more than 15000 from the furniture table.
- iii) To list itemname and type of those items, in which dateofstock is before 22/01/02 from the furniture table in descending order of itemname.
- iv) To display itemname and dateofstock of those items, in which the discount percentage is more than 25 from furniture table.
- v) To count the number of items, whose type is 'Sofa' from furniture table.
- vi) Select AVG(discount) from furniture, arrivals ;
- vi) Select COUNT(distinct type) from Furniture ;

6.a) State Absorption laws and verify one of it using truth table. (2)

b) Draw a logical Circuit Diagram for the following Boolean Expression : (1)

$$A . (B + D C') . (A' + C)$$

c) Convert the following Boolean Expression into its equivalent Canonical Product of Sum Form (POS)

$$A . C + A' . B \quad (2)$$

d) Reduce the following Boolean expression using K – map : (2)

$$F(A, B, C, D) = \Sigma (0, 1, 3, 4, 5, 6, 7, 9, 10, 11, 13, 15)$$

e) Minimize (2)

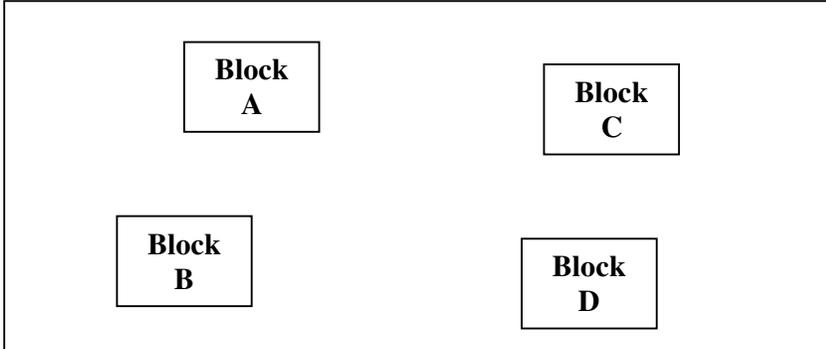
$$x' y' z' + x' y z + x y z + x y' z' + x y' z$$

7.a) Expand the following terminologies : (2)

GSM , CDMA , XML , URL

b) What is Cyber law? What is the importance of Cyber law ? (2)

c) The Omnipresent organization has set up its new centre at New Nagar for its office and web based activities. It has 4 blocks of building as shown in the diagram below : (4)



Distance between the various blocks is as follows :

A to B	40 m
B to C	120 m
C to D	60 m
A to D	170 m
B to D	150 m
A to C	70 m

Numbers of Computers

Block A	25
Block B	50
Block C	125
Block D	10

i) Suggest a cable layout of connections between the blocks and topology.

ii) Suggest the most suitable place(the block) to house the server of this organization with a suitable reason.

iii) Suggest the placement of the following device with justification:

- Repeater
- Hub / Switch

iv) the organization is planning to link its front office situated in the city in hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed .

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